

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group  
Art Unit: Unknown

Attorney  
Docket No.: SHC0146

Applicant: Satoru Tange

Invention: PROCESS FOR MANUFACTURING  
ELASTICALLY STRETCHABLE AND  
CONTRACTIBLE COMPOSITE SHEET

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on August 31, 2001

  
Michelle L. Neat

PRELIMINARY AMENDMENT

Box Patent Application  
Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

Prior to the examination of the above-identified application, please amend the application  
as follows:

IN THE SPECIFICATION

Please replace the second full paragraph on page 3 with the following:

- In the above-described manufacturing process of the composite sheet, the present  
involves the steps of:

Please replace the last paragraph beginning on page 3 and continuing on page 4 with the  
following:

- In one embodiment of this invention, subsequent to the step (c), the following steps  
are further included:-

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Please replace the last paragraph beginning on page 8 and continuing on page 9 with the following:

- The composite sheet 1 can be controlled to further advance in the machine direction and treated into a second composite sheet 1a. A next step that follows in the machine direction is a second extension step 82, involving a pair of fourth rolls 84 and a pair of fifth rolls 85, in which the composite sheet 1 is extended in the machine direction at a specific extension ratio as required. In the second extension step 82, the fifth roll 85 rotates with a faster peripheral speed than the fourth roll 84. After passage between the fifth rolls 85, the composite sheet 1 advances to enter between a pair of carrying rolls 57 which rotate with almost the same peripheral speed as the first rolls 73. The composite sheet 1 extended in the second extension steps 82 is released from tension in the second contraction step 82 involving the fifth rolls 85 and the carrying rolls 57, allowed to retract by the action of an elastic recovery force of the first web 41a, and then wound round a roll as the second composite sheet 1a. The composite sheet 1 shown in Figure 1, when subjected to a single cycle of extension and contraction, results in the second composite sheet 1a which is applicable for the similar uses as the composite sheet 1.-

#### IN THE CLAIMS

Please amend Claim 1 as follows:

1. (Amended) A process for manufacturing a composite sheet capable of elastic stretch and contract in one direction, manufacturing process including the steps of:

(a) continuously feeding, in one direction, a first web capable of elastic stretch and contraction and having a top surface and a bottom surface;

(b) extending the first web in the one direction within a range that permits elastic stretch and contraction of the first web;

(c) allowing the extended first web to retract by an elastic contraction force of the web;

(d) continuously feeding at least one second web in an intermittent manner along the one direction;

(e) superimposing said at least one second web on at least one of said top surface and said bottom surface of the first web; and

(f) joining the first and second webs in an intermittent manner along the one direction.

Claim 2 has been amended as follows:

2. (Amended) The process of Claim 1 further including, subsequent to the step (e) the following steps:

(i) a secondary extension step wherein the joined first and second webs are extended in the one direction within a range that permits elastic stretch and contraction of the first web; and

(ii) a secondary contraction step wherein the extended first and second webs are allowed to retract by action of an elastic contraction force of the first web.

Claim 3 has been amended as follows:

3. (Amended) The process of Claim 2 wherein the thermoplastic synthetic fibers in said at least one second web are engaged with each other by at least one of mechanical entanglement and fusion bonding and, in the step (e), the thermoplastic synthetic fibers are disengaged so that they are individualized.

Claim 4 has been amended as follows:

4. (Amended) The process of Claim 1 wherein the at least one second web comprises two second webs with one second web joined to top surface of the first web and another second web joined to a bottom surface of the first web, the second webs being distinguished from each other by at least one property selected from the group consisting of basis weight, density, type of the thermoplastic synthetic resin, diameter, and length of the fibers thereof.

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Claim 5 has been amended as follows:

5. The process of Claim 1 wherein said first web comprises at least one of a fabric capable of elastic stretch and contraction and composed of thermoplastic synthetic fibers, and a film capable of elastic stretch and contraction and made of a thermoplastic synthetic resin.

Claim 6 has been amended as follows:

6. (Amended) The process of Claim 1 wherein said thermoplastic synthetic fibers in the second web comprise continuous fibers.

#### IN THE ABSTRACT

Please amend the abstract as follows:

- A process for manufacturing a composite sheet by joining a second web made of thermoplastic synthetic fiber and capable of inelastic extension to at least one surface of a first web capable of elastic stretch and contraction in an intermittent manner. The process involves a step of extending the first web and a step of allowing the first web to retract, and a step of joining a second web to the second web while in a retracted state are included.- -


#### **• • • R E M A R K S • • •**

By the present Preliminary Amendment, the specification, claims and abstract have been revised to more clearly describe applicants' invention in accordance with the requirements of 35 U.S.C. § 112.

Care has been taken so as to avoid the addition of new matter in the specification and claims.

Entry of the present Preliminary Amendment prior to the examination of the application is respectfully requested.

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Michael S. Gzybowski

MSG/mln/196136

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Changes Made to Specification Paragraphs

The second full paragraph on page 3 has been amended as follows:

In the above-described manufacturing process of the composite sheet, the present [invention is characterized as including] involves the steps of:

The last paragraph beginning on page 3 and continuing on page 4 has been amended as follows:

In one [preferred] embodiment of this invention, subsequent to the step (c), the following steps are further included:

The last paragraph beginning on page 8 and continuing on page 9 has been amended as follows:

[When needed, the] The composite sheet 1 can be controlled to further advance in the machine direction and treated into a second composite sheet 1a. A next step that follows in the machine direction is a second extension step 82, involving a pair of fourth rolls 84 and a pair of fifth rolls 85, in which the composite sheet 1 is extended in the machine direction at a specific extension ratio as required. In the second extension step 82, the fifth roll 85 rotates with a faster peripheral speed than the fourth roll 84. After passage between the fifth rolls 85, the composite sheet 1 advances to enter between a pair of carrying rolls 57 which rotate with almost the same peripheral speed as the first rolls 73. The composite sheet 1 extended in the second extension steps 82 is released from tension in the second contraction step 82 involving the fifth rolls 85 and the carrying rolls 57, allowed to retract by the action of an elastic recovery force of the first web 41a, and then wound round a roll as the second composite sheet 1a. The composite sheet 1 shown in Figure 1, when subjected to a single cycle of extension and contraction, results in the second composite sheet 1a which is applicable for the similar uses as the composite sheet 1.

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Changes Made to Claims

Claim 1 has been amended as follows:

1. (Amended) A process for manufacturing a composite sheet capable of elastic stretch and contract in one direction, [by continuously feeding, in the one direction, a first web capable of elastic stretch and contraction and having a top surface and a bottom surface, continuously feeding a second web capable of inelastic extension and composed of thermoplastic synthetic fibers on at least one surface of the first web and joining the first and second webs in an intermittent manner along the one direction; said] manufacturing process including the steps of:

(a) continuously feeding, in one direction, a first web capable of elastic stretch and contraction and having a top surface and a bottom surface;

(b) [(a) feeding said first web continuously in the one direction and] extending the first web in the one direction within [the] a range that permits elastic stretch and contraction of the first web;

(c) [(b)] allowing the extended first web to retract by an elastic contraction force of the web; [and]

(d) continuously feeding at least one second web in an intermittent manner along the one direction;

(e) [(c)] superimposing said at least one second web on at least one of said top surface and said bottom surface of the first web; and [after retraction and joining the first and second webs in an intermittent manner along the one direction.]

(f) joining the first and second webs in an intermittent manner along the one direction.

Claim 2 has been amended as follows:

2. (Amended) The process of Claim 1 further including, subsequent to the step [(c),] (e) the following steps:

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(i) [(d)] a secondary extension step wherein the joined first and second webs are extended in the one direction within [the] a range that permits elastic stretch and contraction of the first web; and

(ii) [(e)] a secondary contraction step wherein the extended first and second webs are allowed to retract by [the] action of an elastic contraction force of the first web.

Claim 3 has been amended as follows:

3. (Amended) The process of Claim 2 wherein the thermoplastic synthetic fibers in said at least one second web are engaged with each other by at least one of mechanical entanglement [or] and fusion [bond] bonding and, in the step (e), [(c),] the thermoplastic synthetic fibers are [free freed from the engagement] disengaged so that they are individualized.

Claim 4 has been amended as follows:

4. (Amended) The process of Claim 1 wherein the at least one second web comprises two second webs with one second web [is] joined to top surface of the first web and another second web joined to a bottom [surfaces] surface of the first web, [and] the second webs [respectively joined to the top and bottom surfaces of the first web are] being distinguished from each other [in any of properties, including a] by at least one property selected from the group consisting of basis weight, [and] density, [of the web, a] type of the thermoplastic synthetic resin, [and a] diameter, and length of the [fibers.] fibers thereof.

Claim 5 has been amended as follows:

5. The process of Claim 1 wherein said first web [is either in the form of] comprises at least one of [non-woven or woven] a fabric capable of elastic stretch and contraction and composed of thermoplastic synthetic fibers, and [or in the form of] a film capable of elastic stretch and contraction and made of a thermoplastic synthetic resin.



Claim 6 has been amended as follows:

6. (Amended) The process of Claim 1 wherein said thermoplastic synthetic fibers in the second web [are continuous, long or short fibers.] comprise continuous fibers.

Changes Made to Abstract

The abstract has been amended as follows:

[In the] A process for manufacturing a composite sheet by joining a second web made of thermoplastic synthetic fiber and capable of inelastic extension to at least one surface of a first web capable of elastic stretch and contraction in an intermittent manner[.]. The process involves a step of extending the first web and a step of allowing the first web to retract, and a step of joining a second web to the second web while in a retracted state are included.

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